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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,831	04/02/2001	George Zheng Chen	P 0280083	8466
	7590	03/11/2004	PJS/ALP/P8339US	
Pillsbury Winthrop LLP 1600 Tysons Boulevard MCLEAN, VA 22102			EXAMINER CREPEAU, JONATHAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,831

Applicant(s)

CHEN ET AL.

Examiner

Jonathan S. Crepeau

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 and 26 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-24 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 9, 2004 has been entered.

This Office action addresses claims 1-24 and 26. Claims 1-16 remain withdrawn from consideration as being drawn to a non-elected invention. Although they have been amended, claims 17-24 and 26 remain rejected herein for substantially the reasons of record. This action is non-final.

Claim Rejections - 35 USC § 102

2. Claims 17-24 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Niu (U.S. Patent 6,205,016). Regarding claims 17-19 and 26, the reference is directed to an electrochemical capacitor comprising two composite electrodes, each consisting of carbon nanotubes and a conductive polymer (see col. 6, lines 47-50; col. 7, lines 11-15; col. 8, lines 17-21). Regarding claims 18, 19, and 26, conducting members are in contact with the composites (see Fig. 1). An electrolyte separates the first and second electrodes (see col. 9, lines 37-47). Regarding claim 20, the electrically conductive polymers are selected from polyaniline,

Art Unit: 1746

polypyrrole, polythiophene, and their derivatives (see col. 9, line 5). Regarding claims 21 and 22, the nanotubes may be non-ionized or negatively ionized (i.e., oxidized; see col. 14, lines 32-42). Regarding claim 23, the composites are in the form of “thin films” on the conducting members (see col. 9, lines 10-15). Regarding claim 24, the capacitor comprises a cylindrical shape with an insulating member between the rolled electrodes (see col. 11, lines 23-36). Regarding claims 17, 18, and 26, the reference teaches that the nanotubes may be dispersed in the conductive polymer when the nanotube content is low (see col. 9, line 53). Although the reference does not teach the process limitations recited in claims 17, 18, and 26, the patentability of a product does not depend on its method of production. If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Additionally, once a rationale is provided tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See also MPEP §2113. Accordingly, as the claimed product appears to be substantially identical to the product of the reference, the instant claims are not considered to be distinguished over the reference.

Response to Arguments

3. Applicant's arguments filed February 9, 2004 have been fully considered but they are not persuasive. Applicants assert that Niu fails to teach or suggest the structure recited in the independent claims, i.e., that the discrete nanotubes are individually coated in the electronically conducting polymer while being dispersed therein. However, it is still believed that Niu teaches a product which is indistinguishable from the claimed product. As previously noted by the Examiner, Niu teaches the following in column 9, line 47:

The structure of the electrode depends, in part, on the amount of carbon nanofibers (fibrils) in the composite. With high fibril content, the composite electrodes generally consist of a three dimensional network of fibrils with the electrochemically active matrix materials deposited on the surface of the fibril network. With low fibril content, the fibrils of the composite electrode are generally dispersed in the electrochemically active matrix material.

Thus, it is seen from the last sentence that the nanotubes may be "dispersed," i.e., distributed in a random and discontinuous manner, in the conductive polymer. Further, Niu provides guidance for the artisan to vary the relative amounts of the materials to affect the resulting structure of the electrode. When the weight ratio of nanotubes to electrically conductive polymer is low enough, it is submitted that each nanotube *would be at least partially coated* with the polymer. Such a structure would serve to "hold" the dispersed nanotubes within the structure. This structure would also meet the claimed limitation that the discrete nanotubes are "individually coated" in the electronically conducting polymer. It is noted that the claimed limitation does not specify that the *entire surface* of each tube must be coated. It is further noted that in the above passage, Niu recognizes that if the nanotube content is high, i.e., if the nanotube fibrils form a three-dimensional network, the polymer is "deposited on" the surface of the network. It would follow

that decreasing the nanotube content so as to “disperse” the nanotubes in a continuous polymer matrix would simply increase the amount of polymer on the surface of each tube.

Applicants further assert that “one of ordinary skill in the art would have recognized that the method of Niu would not have provided individually coated nanotubes, because the conducting polymer is merely suspended and not dissolved. Thus, in Niu, the conducting polymer is never in a form where it could form a thin coating around the nanotubes.” In response, it is noted that there is nothing yet of record to indicate that such a conductive polymer suspension is not capable of at least partially coating the nanotubes. Applicant’s assertions are speculative in nature and do not appear to be reasonably supported by any factual basis. As noted above, Niu teaches an embodiment wherein the polymer is “deposited on” the surface of a nanotube network, thus indicating that the process of Niu is capable of depositing polymer on the discrete dispersed nanotubes.

Applicants state that a weight ratio of polypyrrole to nanotubes of 12.5 : 1 was used in replicating the process of Niu. It is agreed that this ratio is relatively high, i.e., significantly higher than the 3 : 1 ratios disclosed in the Examples of Niu. However, the use of such a ratio would merely involve following the guidance of Niu (as discussed above), and as such would involve only routine skill in the art. Further, it is believed that Niu fairly suggests using *any* weight ratio of polymer to nanotubes, not just those disclosed in the Examples.

Regarding Applicant’s assertion that the previously submitted photographs show a clear distinction between the Niu product (at a 12.5 : 1 ratio) and the claimed product, it is unclear whether any individually coated dispersed nanotubes are visible in the second photograph. Nor is there an adequate explanation of the significance of the white dots in the first photograph. It is

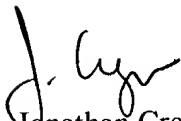
Art Unit: 1746

submitted that neither photograph clearly shows a "dispersed nanotube" structure. As previously stated, the process of Niu would produce a composite in which the nanotubes would be at least partially coated by the polymer. The photographs do not aid in establishing that the replicated Niu process does not produce this structure. As such, the photographs, when considered as part of the record as a whole, do not compel a conclusion that the claimed product is distinguishable over the product of Niu.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Crepeau whose telephone number is (571) 272-1299. The examiner can normally be reached Monday-Friday from 9:30 AM - 6:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski, can be reached at (571) 272-1302. The phone number for the organization where this application or proceeding is assigned is (571) 272-1700. Documents may be faxed to the central fax server at (703) 872-9306.


Jonathan Crepeau
Patent Examiner
Art Unit 1746
March 3, 2004